



1. Needles

2. Freshwater Cliffs & Bay

3. Brixton Bay

4. Atherfield Rocks

5. Black Gang Chine

6. Spring

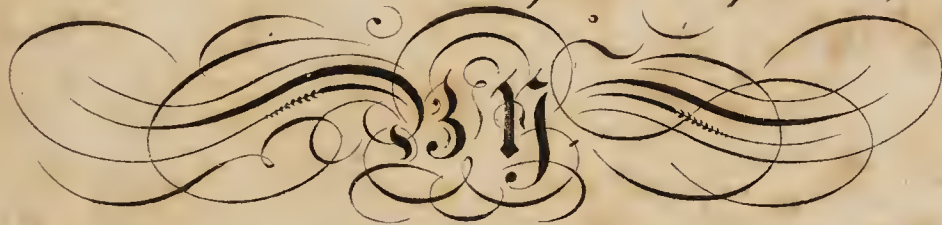
7. Cliffs 30 or 40 ft above the sea

8. Cliffs 20 ft above the sea

A VIEW OF THE SANDROCK SPRING WITH THE
ADJACENT COUNTRY.

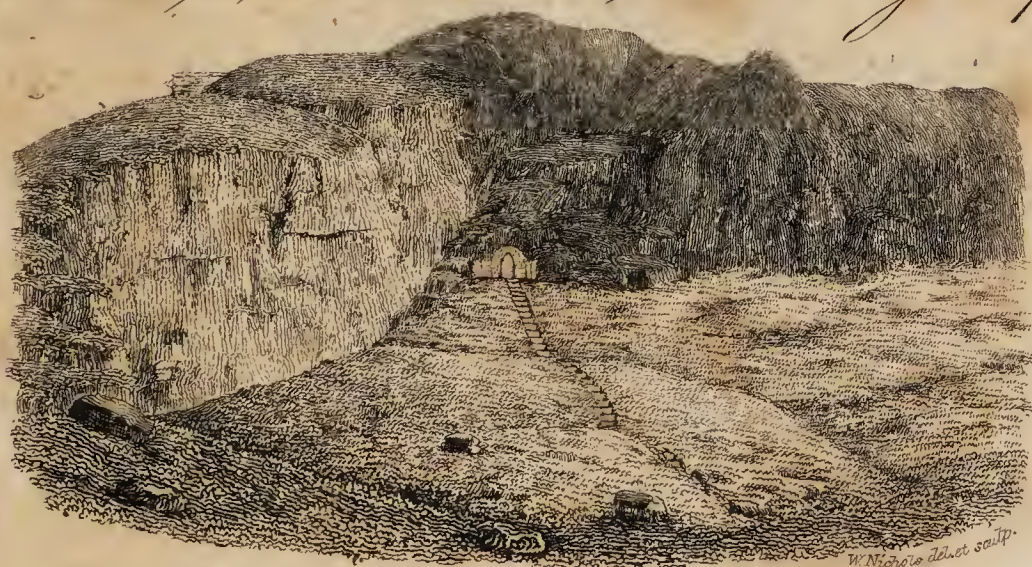
Report
 on the
MEDICINAL EFFECTS
 of an
Aluminous CHALYBEATE Water.
 Lately Discovered at
Sandrock in the Parish of Chale
in the
Isle of Wight.

*Pointing out its efficacy in the Walcheren
 and other diseases incident to Soldiers who
 have served abroad and more
 particularly the advantages to be derived from
 its introduction into private practice*



WILLIAM LEMPRIERE M.D.

Physician to the Forces at the Army Depot.



FRONT VIEW OF THE SPRING.

Printed for and by Musson & Taylor,

NEWPORT, ISLE OF WIGHT.

and

*Sold by John Murray, 32, Fleet Street,
 Nornaville & Fell, 27, New Bond Street,
 and W. & J. Rowdens,*

PREFACE.

THE favorable manner in which the former works* of the author were received, has encouraged him once more to venture before the public, in a literary capacity; and to claim its indulgent attention to a Report, which, founded upon hopes of public utility, is now submitted for perusal.

Invited by the discoverer of the spring, to give trial to a mineral water, which, from

* Entitled, *A Tour to Morocco, and Observations on the Diseases of Jamaica.*

The Tour to Morocco, which has passed through two large editions, viz. one of fifteen hundred, and the other of two thousand copies, is now out of print; but it is in contemplation to publish a third edition of it, in an improved form.

its apparent composition, seemed to possess very considerable tonic powers ; the author would have deemed it a dereliction of his duty, had he declined the proposal ; more especially since, from the number of debilitated patients which daily present themselves in the hospital to which he has the honor to be Physician, such a remedy might prove an important acquisition to the establishment. He however commenced the water with all that precaution and doubt, with which practitioners are usually impressed, when entering upon a remedy, that has not received the sanction of general experience ; and it was not until he had obtained the most indubitable proofs of its efficacy, that he was induced to publish the result.

From the topographical remarks, (particularly those illustrative of the scenery of the Island), which the author has introduced into the Report, it must be obvious, that its perusal is not intended to be confined altogether to the medical reader ; but on the contrary,

that it has been his object to make the remedy as public, and as generally known, as possible ; in order that every one, whose cases may require it, may be benefited by its use. At the same time, the author feels no hesitation in acknowledging, that it is to his professional brethren he wishes more directly to address his discourse ; as it must be through their exertions only, that the water can ever be called into useful purposes ; the remedy being too powerful to be administered, or taken by persons unacquainted with its composition, or with the principles, upon which its efficacy must eventually depend.


Under this view of the subject, a mere detail of the diseases for which this water is recommended, would be ill calculated to impress the medical practitioner with the importance of a remedy, which hitherto has not been brought within the scope of his own observation. He must be acquainted, not only with the composition of the water, but also with the author's views and principles

in the treatment of the diseases for which it is recommended, before he will readily acquiesce in the trial of a remedy, which by him, as before intimated, can only be considered an experiment, the utility of which must rest upon subsequent experience.

Hence the history of diseases, interspersed with pathological remarks, have unavoidably been introduced into the Report, which no doubt may not be exactly calculated to interest, or be comprehended by, the generality of readers. In this case, the author can only recommend, that such passages as are objectionable on that account, may be passed over ; and the perusal be confined to local observations, and to the general effect of the remedy ; subjects which, he trusts, have been brought within the comprehension of every one.

The author here begs to apologise for trespassing so long upon the reader's patience, and to conclude, by observing, that whatever may be the fate of his Report as a literary

composition, his ambition will be most amply gratified, should it in the least degree be the means of alleviating any of the sufferings, to which, from the physical imperfections of our nature, we are all of us daily exposed.



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REPORT,

&c. &c.

THE utility of the natural mineral waters in removing certain morbid affections of the human body, has, by the long test of experience, been fully established, and their efficacy is daily occurring to our observation. For although it will be admitted, that the substances they contain, and to which their medicinal effects may be attributed, bear a small proportion to what might be imitated by art ; yet it most frequently has been found, that when such imitations have been attempted, the preparation has either disagreed with the stomach, or from some cause or

other has been laid aside, before the object could be obtained. Hence we may infer, that in nature, the mineral substances are not only held in more perfect solution by the watery menstruum, than in the former ; but also that they are selected, and combined, with greater nicety, and their proportions more judiciously adapted to the end in view, than where the arrangement and application of the materials have been attempted by art.

There are other circumstances which, in many instances, afford the natural mineral waters an advantage over extemporaneous prescription. Most of them have acquired by tradition, or by evident experience, a distinguished celebrity for curing the diseases for which they have been recommended. They are therefore resorted to with confidence, and are persevered in with a degree of zeal and steadiness, not usually observed by patients, who are placed under the ordinary form of prescription ; a circumstance of great moment in most of the cases where the mineral waters are proper, since, from being of the chronic

kind, they more frequently require a length of time before a cure can be accomplished. A course of mineral waters also necessarily leads to a change of objects, and by that, to a relaxation from those pursuits, whether as connected with habits of dissipation, or mental excitements, which, too often, originally caused the disease : and which, so long as the patient shall remain under their influence, cannot fail to promote its continuance. On various accounts therefore, the natural mineral waters very deservedly hold an important place in medical practice.

There are few situations where a mineral spring, independently of its own intrinsic merits, could, with so much advantage, have been placed, as in the Isle of Wight.

Enjoying a purity of air perhaps unequalled in any part of the kingdom, this Island presents to the eye, one continued succession of the most beautiful and diversified scenery ; blending at once, all the charms and simplicity of the picturesque, with the grandeur and sublimity of the bold and terrific. A very

few words, in the way of description, will be sufficient to convey some general idea of this delightful spot.

Upon the first approach to the Island on the northern side, the stranger is most agreeably surprized at the appearance of the coast, which, rising by a gradual ascent from the sea to hills of moderate elevation, discovers at once, a rich and highly cultivated country, commencing from the water's edge, and extending inward as far as the eye can reach ; interspersed with overhanging woods, and enlivened by gentlemen's villas, which are very tastefully distributed along the coast.

The views from Cowes and Ryde, the ports to which strangers most frequently resort, are particularly interesting. The fine expanse of water which divides the island from the main land, is to be seen covered with vessels of every description, passing and repassing in continued succession. Beyond this, the fleet at Spithead, the town and harbour of Portsmouth, the coast of Hampshire, and the more distant prospect of the Portsdown hills,

produce altogether a very fine effect, and such as cannot fail to attract the attention of visitors.

The interior has also its own peculiar beauties. It consists of a very diversified assemblage of hills of sharp ascent, but of no very considerable height; of gentle slopes; and of corresponding vales, which cultivation, and the natural fertility of the soil, have rendered highly picturesque and attractive.

But it is on the south side, or what by the inhabitants has been termed the back of the island, where the objects are the most grand and sublime, and where nature has been the least interrupted in her operations. Terminated by a range of bold and lofty cliffs of various elevations, that projecting over the sea, form frightful precipices; or, by a series of broken rocks, forced as it were from the heights above, in much apparent confusion, towards the sea, the island here assumes totally a new character; and the attention which, but just before, had been directed to

the picturesque and beautiful, is immediately absorbed in contemplating the unadorned, but more dignified appearances of nature. Indeed, the grandeur of the scenery of this part of the island can only be duly estimated by personal observation.

To these local inducements, may be mentioned, the mildness of the climate ; the island not being subject to those extremes of heat and cold, observable in less insular situations. All the necessaries, and most of the luxuries of life, are here to be obtained at good inns, or in comfortable lodging houses ; and an easy access by means of carriage roads, has been opened to every part of the island worthy of being noticed.

If, to these recommendations, we add the conveniences for sea bathing, we may conscientiously pronounce the Isle of Wight to be a most desirable place for the resort of invalids, and superior perhaps to most of the kind in the kingdom.

DISCOVERY OF THE SPRING.

THE mineral water which is the subject of this report, was first noticed by Mr. WATERWORTH, a very respectable practitioner in medicine in the town of Newport, who has favored me with the following account of the circumstances which led to this important discovery :—

“ Newport, Isle of Wight,
October 1st, 1811.

“ My dear Sir,

“ In compliance with your request, that I should communicate to you the several circumstances which led to my discovery of the Aluminous Chalybeate Water at Sandrocks, I beg leave to inform you, that being engaged with a society of gentlemen about four years ago, in some chemical enquiries, and the subject then under discussion, being the nature and properties of water ; one of the gentlemen observed, that he had heard there was a chalybeate spring at Blackgang Chine

similar in its properties to the Tunbridge Wells water. Soon after this, having occasion to visit the southern coast of this island, and particularly the village of Chale, in the discharge of my professional duties ; I was desirous, from motives of curiosity, to examine the chine in question ; but being ignorant of the precise spot where to find the spring, I applied to the Rev. F. Worsley, the late very worthy rector of the parish, who, from having been resident there for many years, might, I conceived, furnish me with the information I wanted. He accordingly told me, that he had visited the spring several times : that it was a very strong chalybeate, its taste resembling ink. He also informed me, that there was another very curious water at Pitlands, about half a mile to the eastward of Blackgang Chine, which, though perfectly clear and transparent, when taken up, yet on standing at rest for a few hours, deposited a sediment of the colour and consistence of cream ; and in such quantity, as to occupy

one half of the vessel into which it had been received. The ill state of Mr. Worsley's health, at that time not permitting him to accompany me to the place himself, he very obligingly sent his servant, whose knowledge of this part of the country, I found, on our arrival at the bottom of the cliff, was too imperfect to afford me much assistance ; for after rambling a considerable time on the sea shore, I was obliged reluctantly to return, without accomplishing the object of my visit. But, the appearance of the different strata of mineral substances, which every where presented themselves to my notice on the sides of the cliff, convinced me, that if any water issued from thence, it must be impregnated with medicinal qualities ; and the idea immediately suggested itself to my mind, that an examination of the different mineral waters which might be found on the coast, would not only prove a source of amusement to myself, but possibly hereafter might be beneficial to others. With this view therefore, I determined on making a second search, which

luckily proved more fortunate than the preceding; for after traversing the strand for a considerable extent, and tasting every streamlet that flowed down the cliff, I at length found not only both the objects of my research, but also the one which is the subject of your present enquiry.

“ Elated with my success, I shortly after repeated my visit, when I brought away a quantity of the water from each of the springs, for the purposes of chemical examination. In doing which, my attention was at first directed to that arising from Blackgang Chine, and which, a subsequent analysis proved to be, a carbonated chalybeate, of the same kind as the Tunbridge Wells water, only considerably stronger, as it contained a larger proportion of the oxide of iron in the gallon. No other substances were however detected in it but what are found in waters in general.

“ As it may not be irrelevant to your present plan, I shall here describe to you the exact spot where this spring may be found, which is a few feet from the entrance of the chasm,

immediately under the projection of a rock, to which it may be easily traced, by the yellow ochery appearance, which this water assumes, from the deposition of its iron on exposure to the air, and which mixing with the water that breaks over the rocks above, tinging it of the same hue, forms a small stream which empties itself into the sea.

“ Blackgang Chine is an appellation sufficiently descriptive of the place; the term *Black* being applicable to the dingy ferruginous colouring of the soil composing the yawning precipice; on each side of which, the strata rising in gradation gives the idea, on an immense scale, of a *Gangway*, or steps from top to bottom; and *Chine* is a generally adopted term for a chasm, or deep ravine, hollowed out by a water-fall wearing its way between two crags. This chine, several hundreds of feet in depth, has been scooped out, in the process of unnumbered years, by the continual action of the water, descending from the hill of St. Catherine, through this channel, to the sea.

“ I now proceeded to the examination of the Pitland spring water, which I found to be nothing more than a very strong solution of common chalk in water, by means of the carbonic acid; which evaporating under exposure, the chalk is thereby precipitated, and gives the deposit before mentioned. This spring is situated nearly on the site of the landslip which took place in the year 1799, and whose progress towards the sea, though it is now nearly covered with verdure, may yet be distinctly traced. This spring is also mentioned by Sir Richard Worsley, in his History of the Isle of Wight, in which he attributes to it a sulphureous quality, but which my experiments by no means confirmed.

“ Between Pitlands and Blackgang Chine, I observed a small stream making its way through a narrow channel in the beach to the sea. The sand which formed this channel was every where interspersed with particles of a yellow colour, which, on examination, proved to be sulphur, deposited there by

the heat of the sun dissipating the oxygen which formed the excess of sulphuric acid that entered into the composition of this water. Not having, in the least degree, an idea of meeting with a water of this description, I was quite astonished with the peculiarity of its taste ; and as before stated, took some home with me for the purpose of future examination. But whilst I was thus engaged in prosecuting my enquiry with regard to the Blackgang Chine and the Pitland spring waters, I had an opportunity of shewing them to my worthy friend Dr. Saunders, then on a visit to the Island ; who was so struck with the resemblance which the Sand-rock spring water bore to that of the Hartfell Spaw in Scotland, that he advised me immediately to discontinue my pursuit with regard to the other waters, and to devote the whole of my attention to that ; as he was confident it would hereafter prove, not only of advantage to myself, but highly beneficial to others.

“ No idea operates more powerfully on the

human mind than the prospect of self-interest; mine immediately felt the force of my friend's observation, and I at once determined on improving the hint he had given me. After concluding therefore the experiments I was then engaged in, I revisited the beach of Chale Bay; but experienced some difficulty in again finding out the water, from not having sufficiently noticed in my first visit, the several objects that might in future guide me to the place. By persevering however, and tasting every run of water I met with beyond Blackgang Chine, I at length hit on the aluminous chalybeate, as at first, by observing the channel it had formed for itself on the beach, in its descent from the cliff above to the sea.

“ From thence, I pursued its course to the first ledge, and from whence, for a considerable time afterwards, I collected what quantities I wanted. As the sand cliff over which the water flowed, was constantly mouldering away by its repeated action, and thus destroying every arrangement I had

made for procuring it, I endeavoured, if possible, to trace the spring to its source; and having climbed up the first ledge of rocks, found where the water first broke ground.

“ This therefore, at that time, I naturally concluded was the head of the spring; and was accordingly preparing plans for securing it to myself; but the winter season coming on, and not being then acquainted with any other way of getting to the place, but by previously descending the cliff at Blackgang, which path, from the excessive rains that closed the year 1808, was rendered exceedingly difficult and dangerous; I was obliged to suspend all further operations until the ensuing spring; when, as soon as the weather became moderate, I renewed my visits to my favorite spot. But the scene there was completely changed; the preceding winter having been remarkably wet, and the rain water from the hills above having accumulated in large quantities in the earth directly above the spring; the water had burst itself a

passage, by pushing forward the light sandy soil over a substratum of blue clay, thus loosening the ground in every direction, and forming fissures, which threatened at a future period, to precipitate the whole of this ledge into the sea. So great indeed was the disposition of the ground to give way, that frequently, while I have been there for the purpose of collecting water, huge masses of rock have tumbled down from above, overwhelming every thing in their descent; and one of them actually broke a stone jar, which my servant had just put out of his hand, in order to fill another with water.

“ As under these circumstances, it would have been the height of folly to have erected any building on a basis so uncertain and so untenable; it became absolutely necessary that I should endeavour to trace the spring to ground less objectionable. To do this, therefore, I employed an intelligent person, who was well versed in digging wells, &c. to follow the course of the water, by boring the ground at small distances from whence

the water issued upwards, towards the second cliff; and by a machine contrived for the purpose, I was enabled to examine whatever water followed the boring iron. This plan had been pursued for some time, when one day, as the man was engaged in boring, and I was amusing myself in examining the different strata of soil in the middle cliff, or second ledge from the sea, I discovered about half-way up this cliff, a small, dark, blue spot, which I with much difficulty reached; but on gaining it, was amply repaid for my trouble. For although I had tasted every water I could find within a few feet of this, yet on scraping away the dirt, and scooping out a small hollow with my hands in the sandrock, I perceived it was immediately filled with water, and which my taste convinced me was the one I was in quest of, but possessing powers very far superior to the water which I had at first discovered. This circumstance, as I afterwards learned, was simply owing to the water which I first

discovered, becoming very much diluted by mixing with other streams of fresh water in its descent towards the sea.

“ You, my dear Sir, may easily guess what were my sensations at this moment. I thought I never felt happier in my life; and calling to the man who was at work below, I was, by his assistance, soon enabled, not only to procure a reservoir, sufficiently large to contain what quantity of water I might have occasion for, but also to ascertain beyond a doubt, that I had now arrived at the true source, or head of the spring.

“ Being convinced from the nature of the rock in which the spring was situated, that nothing could shake its foundation, my next step was to endeavour to obtain an exclusive right to the soil, and this on application was immediately granted me in a lease for lives, in the handsomest manner by the Honorable Charles Anderson Pelham, the then lord of the manor of Chale. This manor has since been sold to Michael Hoy, Esq. the present

proprietor, and who has lately purchased several other estates in the neighbourhood.

“ Having succeeded thus far, my attention was next directed to inclosing the spring. For this purpose, I made an excavation into the sandrock of about eleven feet in depth, and the same in length ; and with stone procured on the spot, formed an arched inclosure sufficiently strong to resist the weight of earth, which any future slides might force upon it. Into the reservoir hollowed out of the rock within this building, the water, oozing in every direction from the surrounding strata, empties itself, and is conveyed, by a concealed pipe, into a shell beneath, capable of containing about nine gallons, and which was chisselled out of a large rock I found lying on the ground at the bottom of the hill. From this shell, the water is carried by a covered drain, into a pond of fresh water, supplied from the hills above. The quantity of water collected in the reservoir is, as far as I can ascertain, between three and four hogsheads in the twenty-four hours.

“ Previous to my finding the head of the spring, I was, as before observed, obliged to descend by Blackgang Chine ; but I afterwards found a readier access to it from Niton, and from repeatedly going backward and forward, can now convey the water to Newport with comparative ease ; by taking a truck, or cart, which supports a tub, to the beginning of the landslip, where I leave it ; and by a winding path through the common, conducting my horse, which has two small tubs, suspended one on each side, which, after filling are conveyed back the same route, and emptied into the large one above.

“ Agreeably to the plan I had formed, after my interview with Dr. Saunders, I commenced a set of experiments, which sufficiently satisfied me, that the substances which give to this water its decided character, are sulphate of iron, and sulphate of alumina ; which, though they are rarely found combined in water, yet exist in this, in a far greater proportion than in either the Hartfell

Spaw in Scotland, or in the Horley-green Spaw in Yorkshire.

“ Finding it therefore possessed of such strongly tonic powers, I began to prescribe it, both in my public and private practice, and the result having been attended with the most marked success, I embraced every opportunity of employing it more extensively ; and can now from experience confidently assert, that I have found it singularly efficacious in the cure of all diseases, arising from, or connected with, debility, indigestion, hypochondriacal disorders, chronical dysentery, leuchorrhœa, passive uterine hemorrhagy and, in short, in all diseases depending upon a lax fibre and languid circulation, unattended by fever, inflammation, or any marked disorganization of the viscera.

“ My professional engagements at that time not allowing me sufficient opportunity, of entering more minutely into the investigation of other substances, which were supposed to be contained in this water, I was, by Dr. Saunders, introduced to Dr. Marcet,

who, in the most friendly manner, undertook the analysis, from residuum I had obtained by the slow evaporation of the water ; and from quantities of the water, which I occasionally supplied him with, taken fresh from the spring. This analysis, which he so ably conducted, and which he has so scientifically completed, is now published in the first volume of Transactions of the Geological Society of London.

“ After I had been in the habit of using the Aluminous Chalybeate water for a considerable length of time, I was desirous of obtaining other evidence of its effects ; and as, from the vast number, and variety, of cases which daily present themselves to your notice, in the Army Depot Hospital, a wide field appeared to me to open for ascertaining its efficacy ; I, at the close of the year 1809, requested the favor of you to make trial of it at that establishment ; and I am truly happy that your testimony confirms me in the favorable opinion I had formed of its qualities.

“ To you, therefore, my dear Sir, my first and warmest acknowledgments are due, for

the trouble you have taken, and the zeal you have manifested, in bringing forward a remedy, which promises to be so highly beneficial to mankind.

“ Permit me also here to express the obligations I feel myself under to Sir John Barington, Bart. for the liberal support he has given to my undertaking, and the friendly interest he has shewn me, not only on this, but on every other occasion, since I have had the honor of his acquaintance.

“ I should consider myself also wanting in gratitude and respect, were I to omit mentioning the high sense I entertain of the obligation which the several gentlemen, who did me the honor of associating for the purpose of promoting the spring, under the denomination of the Sandrocks Spring Society, have conferred on me, by favoring my discovery with their patronage and support.*

“ I remain, dear Sir, &c.

“ T. L. WATERWORTH.”

“ *To Dr. Lempriere.*”

* Mr. Waterworth has favored me with the following

“ P. S.

“ Nov. 4, 1811.

“ Since writing the above, I have received the accompanying letter from Dr. Saunders, who, at my request, was so obliging as to give trial to the mineral water, and to favor me with his opinion. As the Doctor has no objection to his letter being published, I conceived that I could not make a better use of it, than by placing it in your hands.”

Names of the Gentlemen who constitute the SANDROCKS
SPRING SOCIETY :—

The Hon. C. A. Pelham, M. P.	James Mackenzie, Esq.
Sir L. W. Holmes, Bart. M. P.	Joseph Hadfield, Esq.
The Rev. H. Worsley, D.D.	John Gillispie, Esq.
William Moore, M. D.	Robert Clarke, Esq.
Benjamin Jolliffe, M. D.	John White, Esq.
The Rev. John Barwis,	James Clarke, Esq.
The Rev. Noel Digby	Thomas Sewell, Esq.
The Rev. G. Hayter	Arthur Cossins, Esq.
The Rev. R. Walton White	Thomas Ogle, Esq.
The Rev. A. Hamilton	Richard Foquett, Esq.
The Rev. J. Cooke	James Jolliffe, Esq.
Edward Rushworth, Esq.	James Jolliffe, jun. Esq.
John Delgarno, Esq.	James Cull, Esq.
Michael Hoy, Esq.	John Wavell, Esq.

*Copy of a Letter from Dr. Saunders to Mr.
Waterworth :*

“ Dear Sir,

“ THE Aluminous Chalybeate Spring of the Isle of Wight, which you have so successfully applied to medical purposes, appears to me to be of considerable efficacy in the cure of a variety of disorders of the most obstinate and dangerous nature.

“ The aluminous chalybeate of Hartfell in Scotland, is of the same nature as that of the Isle of Wight, as far as regards its component parts, but differs much in their proportion and quantity. From the very accurate and scientific analysis of the Aluminous Chalybeate of the Isle of Wight by Dr. Marcet, it appears that a pint of sixteen ounces of that spring contains 107 grains of solid and soluble contents ; while one pint of the aluminous chalybeate of Hartfell, contains only about 14 grains of solid and soluble matter. The proportion of alum is considerably more

in the Chalybeate of the Isle of Wight than in the Hartfell Spaw, in which it is not a seventh part of the sulphate of iron ; while in that of the spring of the Isle of Wight, it is three-fourths of the quantity of the sulphate of iron. Although the nature of the component parts of both are the same, yet the difference in the proportion, will give a diversity of effect in the cure of diseases. Your Chalybeate Spring cannot fail of being an important addition to our materia medica, and although it appears to me to be too active and powerful in its effects upon the stomach in its natural state of impregnation, yet it has the advantage of weaker springs, that it will admit of dilution with water, in any dose suited to the state of the disorder, or the constitution of the patient.

“ Sometimes it will produce on first using it, giddiness and sickness, and for the most part, costiveness, which effect is easily obviated by some laxative remedy ; while the former will be prevented, by taking it in small

and more divided doses. My experience of your spring has been in cases of uterine hæmorrhagy, excessive discharges of the fluor albus, and in incipient cases of diseased uterus, so as to prevent the progress to ulceration.

“ I have generally given it in such a state of dilution, so as to reduce it to one-third of its natural strength. I think under such circumstances, the patient may drink of it a pint daily, and perhaps some may take it in larger quantities. I am persuaded that in dyspeptic cases, and in chronic diarrhæas, it will be found useful. I have had likewise considerable experience of its use in chlorosis ; in which it will be found less stimulating and heating from the proportion of the chalybeate being less than that of the sulphate of alum, compared to the Hartfell Spaw under the same state of dilution. I believe in all strumous and glandular diseases, it will be found efficacious, where a tonic and mild astringent may be combined with advantage. I am much disposed to think favorably of it as a

lotion in many cutaneous diseases, and in phagedenic and strumous ulcers ; but this I must refer to the consideration of the surgeon. I think upon the whole, it seems indicated as an auxiliary to sea bathing, or in disorders depending upon a lax and irritable habit. I suspect that some stomachs will be found not to relish it in its natural state of impregnation : I would therefore recommend its dilution with different proportions of water, according to the circumstances of the case under treatment.

“ With best wishes for your laudable endeavors on this subject, believe me to be,

“ Dear Sir,

“ Yours very sincerely,

“ WM. SAUNDERS.

“ Russell Square, Nov. 3, 1811.”

“ To

Mr. Waterworth. ”

THE testimony of Dr. Saunders, who with so much ability has already directed his attention to the subject of mineral waters in general, and particularly to the Hartfell Spring, which in its composition bears so near a resemblance to that of the Sandrocks, must necessarily carry with it great weight ; and his observations on the Aluminous Chalybeate of the Isle of Wight, and on the mode of administering the water, cannot fail to make an useful impression on the mind of the practitioner, as well as of the patient.

Mr. Waterworth's interesting communication, affords another instance, in addition to those already on record, of medical discoveries owing their origin to adventitious circumstances. For had not that gentleman, from motives at first of curiosity only, so natural to persons engaged in scientific pursuits, directed his attention to the spring at Blackgang Chine ; and moreover, had he not afterwards conducted his researches with a degree of zeal and perseverance, only to

be estimated by a local knowledge of the difficulties which presented themselves, the Sandrocks Spring would not, at this time, have been called into notice ; nor would the task have devolved on me, of announcing to the public, the virtues of a remedy, that I have every reason to hope will hereafter prove a most important acquisition to the healing art.

Though, from motives of delicacy, Mr. Waterworth may have deemed it prudent to withhold any account of the scenery which presents itself in the vicinity of the spring, yet the subject is too interesting to be passed without notice in this report ; more especially as it offers an additional inducement for invalids to visit the island, and is, in itself, in a certain degree, calculated to contribute to their recovery.

In that part of the southern coast, which forms what has been called Chale Bay, the appearance of the country is uncommonly bold, and the hills, particularly that of Saint

Catharine, of very considerable elevation ; * forming cliffs that overhang each other in gradual succession, until they terminate in a ledge of rock about forty feet above the level of the sea. The cliff from this ledge, immediately overlooks the beach, consisting of a long tract of fine sand, of sufficient firmness, to admit of exercise being taken upon it when the tide is low, and from which there is a delightful prospect of the British Channel, Chale Bay, and of the western extremity of the Island.

On the side of the second ledge, is situated the Sandrocks Spring, as explained by Mr. Waterworth. This sequestered spot is immediately surrounded by a tract of land, possessing none of those features of scenery, which owe their character to cultivation and local improvements. All here is Nature in her wildest and most simple attire ; where broken rocks covered by a scanty vegetation,

* The summit of St. Catharine's hill is estimated to be 750 feet above the level of high water mark.

bold and rugged cliffs, and precipices bounded apparently by the sea, irresistibly for the moment divert the attention from the enlivened, but more distant prospect which opens to the west, where the high cliffs of Freshwater form objects of particular interest. But upon leaving the spring, and ascending the heights above Blackgang Chine, (a tremendous rent in the rocks, which has already been so well described by Mr. Waterworth,*) the scenery assumes a totally new aspect.

The fine bend of land which encircles Chale Bay, is here seen directing a westerly course for a considerable extent, until it terminates in the extremity of the Island, where

* The sides of this tremendous chasm are little short of 500 feet high, but shelving; and a spring, which has its rise in the summit, winds slowly down to the sea. It has a more savage and barbarous appearance than Shanklin Chine, and not a bush is to be seen on any part of the mouldering precipices, to soften its terrific aspect; but it is most awful from the shore below, where also the whole line of coasts, to the extremity of Freshwater cliffs, is clearly discernible.—(Albin's Account.)

are situated the rocks, so well known by the familiar term of the Needles. Along this range of coast, distinguished for the beauty of its bays and promontories, the Atherfield rocks, Brixton bay, the high cliffs of Freshwater * and the Needles, all bounded on the south and south-west by the British Channel, pass before the eye in regular succession, until the view is terminated by the Island of Purbeck, or in very clear weather, by the high land of Portland; which, rising like a cloud upon the horizon, adds considerably to the general effect; and if in the same scope, we embrace a fine tract of highly cultivated country, commencing from the edge of the cliffs to the westward of Chale, and extending along a chain of downs, that reach from Shorwell to the Needles, we shall have completed our description of this enchanting prospect, so calculated to afford gratification to amateurs in picturesque scenery. †

* These cliffs in some places are 600 feet above the level of the sea.

† The views of Sandrocks Spring, in the frontispiece and vignette, were taken upon the spot, and afterwards etched, by Mr. W. Nichols of Newport, a youth of very rising merit.

The access to the spring, owing to there being no regular road, and to the number of broken rocks which every where present themselves, must certainly be considered difficult; and the spring, at present, cannot be approached without fatigue and inconvenience, unless by persons in good health, or who have been accustomed to this species of rambling. There however is now a prospect of these obstacles being removed; the erection of a pump room and other buildings, which usually are found essential at watering places, being at present under consideration, and which, if effected, will necessarily lead to the formation of good roads. But as the best concerted plans will sometimes be defeated by unforeseen contingencies it will be satisfactory for it to be known, that the Aluminous Chalybeate water, owing to the mineral substances it contains, being held in solution by the sulphuric, in the place of the carbonic acid, is not so liable to decomposition from keeping, as most of the other mineral waters, and consequently it may be

taken at any distance from the spring, provided the atmospheric air be carefully excluded by good corking, and the bottles be placed on their sides in a cool apartment.

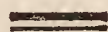
It does not appear that the mineral waters described by Mr. Waterworth, as belonging to the parish of Chale, are the only ones which have been discovered, or which actually exist, in the Isle of Wight. For my much lamented friend, the late Colonel Hill informed me, that upon his estate in the parish of Bonchurch, he possessed a spring which furnished water similar to that of the Sandrocks, differing only in being weaker; and Sir Richard Worsley, in his History of the Island, notices another that was discovered at Shanklin, during the reign of Charles the second, which was analysed by a Dr. Fraser, at that time physician to the king, and in consequence, the place was much frequented by invalids. These circumstances, combined with Mr. Waterworth's account, and with the general appearance of the coast, afford very strong grounds for supposing,

that throughout the range of high land which forms the southern boundary of the island, many other springs do now exist, which, by the aid of future discoverers, may be converted to purposes of public utility.

COMPOSITION OF THE WATER.



THE next subject which engages our attention, is the analysis of the water, and for this the public is indebted to Dr. Marcet, who has published in the Geological Transactions, a very ingenious paper on the subject of which the following are extracts :*



*Situation and Natural History
of the Spring.*

“ THIS spring is situated on the south-
 “ west coast of the Isle of Wight, about two
 “ miles to the westward of Niton, † in one of
 “ those romantic spots for which that part of
 “ the coast is so remarkable. In its present

* The author did not possess the conveniences for analysing the water himself. Of this he had the less reason to regret, as he was informed in the early stage of the business, that the subject was already in the more able hands of Dr. Marcet, the accuracy of whose experiments is so well known.

† On an estate belonging to Michael Hoy, Esq.

“ state it may be said to be of difficult access,
 “ for there is no carriage road, nor even any
 “ regular foot path along the cliff leading to
 “ it, and the walk would appear somewhat
 “ arduous to those unaccustomed to pedes-
 “ trian excursions. But it would be practi-
 “ cable, and perhaps not very expensive, to
 “ render this path equally easy and agreeable.
 “ It was in walking along the shore, a few
 “ years ago, that Mr. Waterworth’s attention
 “ was accidentally directed to this spring,
 “ which he traced to its present source, by
 “ observing black stains formed by rivulets
 “ flowing from that spot.

“ With regard to the mineralogical history
 “ of that district, I have been favored through
 “ the kindness of my friend Dr. Berger, who
 “ visited the spot very lately, with so much
 “ more accurate an account of it than I
 “ should, from my own observation, have
 “ been able to offer, that I shall make no
 “ apology for transcribing it in his own
 “ words : ”

“ THE Aluminous Chalybeate Spring, ”
 “ says Dr. Berger, “ issues from the cliff on
 “ the S.S.W. coast of the Isle of Wight, below
 “ St. Catharine’s sea mark, in the parish of
 “ Chale. The bearing of the Needles from
 “ the spot is N. W. while that of Rocken-
 “ end, not far distant, is S. E. by S.

“ The elevation of the spot, as far as I
 “ could ascertain it by the barometer, is one
 “ hundred feet above the level of the sea.
 “ Its distance from the shore may be about
 “ one hundred and fifty yards.

“ The water is received into a bason formed
 “ in the rock for that purpose, and flows, as
 “ I was informed, at the rate of two or three
 “ hogsheads in the day. Its temperature I
 “ found to be 51° , that of the atmosphere
 “ being 48° ; and it may be worth while to ob-
 “ serve, that this temperature corresponds
 “ with that of several springs of pure water
 “ which I have met with in the Island.

“ The lower part of the cliff is rather en-
 “ cumbered with masses of rock, or portions
 “ of soil, which have fallen from the upper

“ strata. Immediately above these, the spring
 “ issues from a bed of loose quartzose sand-
 “ stone containing oxyde of iron. This sand,
 “ in which vestiges of vegetable matter are
 “ discoverable,* alternates with a purplish
 “ argillaceous slate of a fine grain, disposed
 “ in thin layers with a few specks of silvery
 “ mica interspersed throughout the mass.
 “ Black stains, or impressions of vegetables,
 “ are seen on the natural joints of this rock.
 “ Above this, lies a stratum of several fa-
 “ thoms in thickness, of a bluish calcareous
 “ marl, with specks of mica, which has an
 “ earthy and friable texture, and contains
 “ imbedded nodules or kidneys of sulphuret
 “ of iron. Many of these nodules have un-
 “ dergone a partial decomposition, to which,

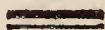
* “ On being sprinkled on a heated shovel, this sand
 scintillates as if undergoing a partial combustion. When
 submitted to chemical analysis, it yields a quantity of
 iron, but no lime, nor alumina, nor any other matter
 soluble in an acid. Close to the spring, this sand con-
 tains some traces of sulphuric acid, but not at a distance
 from it : it is evident therefore that the sandrock is not
 the medium through which the spring is impregnated.”

“ no doubt, the existence of the principal
 “ ingredients of the spring is to be ascribed.
 “ The upper strata of the cliff are composed
 “ of a calcareous free-stone, alternating with
 “ a coarse shelly lime-stone, accompanied by
 “ nodules or layers of chert or flint.

“ As the same arrangement of rocks here
 “ observed, prevails in several other parts of
 “ the Isle of Wight, it is not improbable that
 “ other springs of a similar nature might
 “ be discovered. May not Alum Bay, which
 “ lies to the north of the Needles, have de-
 “ rived its name from a circumstance of this
 “ kind ?

“ On the road from Shorwell to Chale,
 “ the soil consists of a ferruginous sand stone,
 “ and chalybeate iridescent waters are to be
 “ seen in several places. To the east of Fresh-
 “ water bay, not far from the place where
 “ the cliffs of chalk begin to make their ap-
 “ pearance, there is a rivulet, the taste of
 “ which strongly indicates the presence of
 “ iron. At Blackgang Chine, a little to the

“ N. W. of the Aluminous Chalybeate, is
 “ another ferruginous stream running to the
 “ sea. The rock there, is a sort of decom-
 “ posed iron stone, under the form of balls.
 “ The round compact iron stone, having the
 “ appearance of flat pebbles worn by the
 “ rolling of the sea, occurs not unfrequently
 “ along the shore. ”



*General Qualities and specific Gravity
 of the Water.*

“ a. THE water issues from the Sandrock
 “ above described, perfectly transparent, and
 “ it continues so for some time, provided it
 “ be collected immediately, and preserved in
 “ perfectly closed vessels ; but if allowed to
 “ remain in contact with the air, or even if
 “ corked up after a temporary exposure to it,
 “ reddish flakes are soon deposited, which
 “ partly subside, and partly adhere to the in-
 “ side of the vessel.

“ b. It has no smell, except that which is

“ common to all chalybeates, and this it possesses in a very slight degree.

“ *c.* Its taste is intensely chalybeate, and besides a considerable degree of astringency and tartness, it has the peculiar kind of sweetness, which sulphat of iron and sulphat of alumina are known to possess.

“ *d.* Its specific gravity somewhat varies in different specimens. In three different trials I obtained the following results :

“ First Specimen	1008,3
“ Second Specimen.....	1007,2
“ Third Specimen	1006,9
	<hr/>
	3022,4

“ Which gives a mean specific Gravity of 1007,5 ”

HERE follow the different experiments resorted to by Dr. Marcet for the analysis of the water, which are well worthy the attention of the man of science ; but it will be sufficient for our present purpose to introduce the final result, which the Doctor gives in the following words :

“ *Conclusion.*—On reviewing and connecting together all the foregoing results,

“ it appears that each pint, or sixteen ounce
 “ measure, of the Aluminous Chalybeate,
 “ contains the following ingredients :

“ Of carbonic acid gas, three-tenths of a cubic
 “ inch

“ Sulphat of iron in the state of crystallized ^{grs.}
 “ green sulphat 41,4

“ Sulphat of alumina, a quantity which, if
 “ brought to the state of crystallized alum,
 “ would amount to 31,6

“ Sulphat of lime, dried at 160° 10,1

“ Sulphat of magnesia, or Epsom salt, crys-
 “ tallized 3,6

“ Sulphat of soda, or Glauber salt, crys-
 “ tallized 16,0

“ Muriat of soda, or common salt, crystal-
 “ lized 4,0

“ Silica 0,7

107,4

“ I am not acquainted with any chalybeate
 “ or aluminous spring, in the chemical his-
 “ tory of mineral waters, which can be com-
 “ pared, in regard to strength, with that just
 “ described. The Hartfell water, and the
 “ Horley Green Spaw, both of which appear

“ to be analogous in their chemical composi-
 “ tion, and were considered as the strongest
 “ impregnations of the kind, are stated by
 “ Dr. Garnett to contain, the one only about
 “ 14 grs. and the other 40 grs. of saline
 “ matter, in each pint.

“ No doubt therefore can be entertained,
 “ that the water which is the subject of this
 “ essay, will be found to possess in a very
 “ eminent degree the medical properties
 “ which are known to belong to the saline
 “ substances it contains. Indeed there ap-
 “ pears to be in that spring, rather a redun-
 “ dance, than a deficiency of power, and it
 “ is probable that in many instances, it will
 “ be found expedient to drink the water in a
 “ diluted state ; while in others, when it may
 “ be desirable to take, in a small compass,
 “ large doses of these saline substances, it
 “ will be preferred in its natural undimi-
 “ nished strength. ” *

* See Dr. Marcet's Report in the first volume of
 the Geological Transactions.

MEDICINAL EFFECTS,
AND
MODE OF ADMINISTERING THE
WATER.

IT was about the latter end of the year 1809, when my attention was first called to this new remedy, by Mr. Waterworth ; who then mentioned to me the discovery he had made of a spring, holding in solution considerable portions of alum and iron. It occurred to that gentleman as well as to myself, that so powerful a tonic might essentially contribute to the relief of many of the chronic diseases which are well known to be received into the Dépôt Hospital from abroad, and particularly soldiers who had been debilitated, or otherwise diseased, by serving in hot and unhealthy climates. *

* The Army Dépôt is the final resort previous to embarkation, for all the recruits and volunteers that are sent to the different regiments abroad ; as well as for the sick

As Mr. Waterworth's object was to ascertain the effects of this water by an enlarged experience, he very liberally offered, without expense to the public, to furnish me with supplies in proportion to my wants; and as at that period, a number of patients had been admitted into hospital from Walcheren, greatly reduced by agues, and other diseases incident to that climate, and who appeared in every respect to be fit subjects for a course of the water, no time was lost in carrying the proposed plan into execution.

But previously to my entering upon the treatment of these cases by the new water, it

and disabled soldiers, that are from time to time invalided from thence. Hence the hospital practice presents a mixture of the acute and other diseases of this country, with the chronic affections of foreign climates.

The average number of physicians' patients daily in hospital, throughout the year, may be estimated at about eighty, of which two-thirds generally labour under chronic disease. During the winter months, the acute diseases greatly exceed the chronic, and the medical cases at that period often amount to 120 or more; but as the troops in summer are pretty uniformly healthy, the difference is thereby balanced, and the above calculation may be considered to be altogether tolerably correct.

will be of use to offer a few observations on the Walcheren diseases in general.

The Island of Walcheren, with the exception of a few sand-hills of moderate elevation, is, throughout its whole extent, nearly upon a level with the sea, against the encroachments of which, it is only secured by dykes, or artificial embankments, raised at an immense expense, and assisted by juts which projecting out in the sea, are placed in such directions, as to break the force of the waves ; and by layers of straw pinned to the ground in the form of matting, which admitting the sea to pass over their surface, serve to prevent its undermining the banks. *

The island therefore may be considered in no other light, than as a large bason, calculated to retain the greater part of the water that falls there in the form of rain ; and had it not been intersected by canals and ditches,

* The author had a personal opportunity of being acquainted with the situation of this island, when sent with two other gentlemen, in Sept. 1809, upon a special mission to report upon the state of health of His Majesty's troops at that time in Walcheren.

which serve, in some degree, the purposes of draining, this place must certainly have been uninhabitable.

These artificial drains however from their filthy state and stagnant contents, in combination with the swampy ground which nearly every where presents itself in Walcheren, naturally produce very unhealthy exhalations, more especially towards the termination of summer, when the preceding heat has called them into full activity ; and as from the number of trees distributed over the island, and planted in a desultory manner, a free circulation of air is interrupted, these exhalations receive little, or no dilution, from those salutary sea breezes which, in other places, serve to mitigate the natural unhealthiness of the climate. It must be obvious therefore, that nothing here is wanting, but a tropical sun, to produce all the West India diseases in their most malignant form.

The exhalations to which I allude, are well known by the term of marsh miasmata, and are in many situations, the most destructive

causes of mortality, of any perhaps in nature.

Fevers of the intermittent, remittent, and sometimes of the continued type, and dysentery are among the acute diseases ; and affections of the abdominal viscera, among those of the chronic kind, that are the products of this very deleterious air. But there is also an effect it produces on the constitution, that I do not think has in general been sufficiently estimated by medical men.

I allude to its direct action, unconnected, in a great measure, with acute disease, on the vital principle itself; by which all the functions of the body are impaired, the circulation becomes languid, and these with a torpor of the nervous system, so far interrupt the chylopoetic process, that an atrophy is induced, and the patient gradually sinks, without any leading disease, that could sufficiently explain the cause of so fatal a termination of his ailments.

This effect I frequently experienced during my residence in the West Indies, where houses from necessity have been placed in

the midst of swampy ground, and where the white inhabitants have seldom survived a third year's residence. A similar effect, under certain circumstances, was observable in the Walcheren cases; evinced by the emaciation, exsanguine complexion, and general torpor of the patient, without much disposition, in those instances, to febrile attacks; and I have noticed the same in soldiers that have been admitted into hospital from Tilbury Fort, a situation well known to be unhealthy. Many of these men, in whom we could trace no previous attack of ague, or any evident visceral affection, had their constitutions so impaired by a residence at that place, as to render it extremely difficult, and sometimes impracticable to restore them to health. Upon examination after death of those cases which ended fatally, some of the viscera of the thorax or abdomen, and sometimes of both, were found in a state of disease, though there had been previously, no local pain, or external appearance, indicative of such affections.

If the diseases produced by marsh exhalations be not unfrequently distinguished by a general torpor of the system, we need not be surprized, that little, or no impression could be made on those from Walcheren, by the remedies which, in other instances, had been known to produce the most beneficial effects; or that those viscera in which the circulation is slow and intricate, such as the liver and spleen, should often become the seat of fatal obstructions.

Such in reality proved to be the case; for the Peruvian Bark, so deservedly held in estimation as a remedy for intermittents, in most instances failed to check the paroxysms of ague; the strength could not be restored by the ordinary tonics; and the disposition to form visceral obstructions, was so marked, and so frequent, that few of the patients who returned from Walcheren, could be considered as entirely free from an affection of that kind.

Under these circumstances, it became the duty of the physician to lose sight of the or-

dinary mode of practice, and to look forward to a remedy that might with more certainty call the torpid system into action; and as there appeared no medicine so likely to produce that effect as mercury, it was resorted to in the treatment of the Walcheren cases admitted into the Dépôt Hospital, and certainly with very evident advantage.

In obstinate intermittents therefore, mercurial frictions were combined with the Peruvian Bark, and persevered in, until the system was under the influence of that powerful mineral; and it seldom occurred, that any impression could be made on the disease, until a ptyalism, or such a general soreness of the mouth had been induced, as rendered it no longer necessary, or even improper to continue the frictions.

In obstructions of the viscera, active purges were combined with the mercurial course; and where a tension and pain on pressure accompanied with febrile symptoms, indicated the presence of inflammation, the frictions were omitted, and cupping glasses

were applied to the part affected, succeeded by fomentations and a blister, the patient being placed upon the strictest antiphlogistic regimen. By these means, the diseases alluded to, were in a great many instances relieved; but it not unfrequently happened, that there remained such a depression of strength, and diminution of the nervous energy, as not only to render the patients unfit to resume their duty, but also extremely liable to a relapse. In short their recovery might be considered at a stand, and it did not appear to be in the least degree promoted by the usual tonics, whether of the vegetable or mineral kingdoms, and which, in most other instances, have seldom failed to restore debilitated patients.

Such cases therefore appeared to offer a fair opportunity for trying the new mineral water, and for ascertaining how far its tonic powers exceeded those of the various preparations of iron usually ordered in extemporaneous prescription.

For this purpose, sixty patients were selected, in whom the paroxysms of ague had been suspended by the means heretofore explained, but who were left in a state of great debility, and were constantly experiencing a relapse upon changes of the weather, or other casual circumstances. Many of these patients had taken steel pills with myrrh very similar to those now directed in the new London Pharmacopœia, without producing any evident advantage; and others had been placed on a course of vegetable tonics, with as little good effect; so that they might be considered very fair subjects for a trial of the new remedy.

In about three weeks, thirty-six of these patients were restored to health, and sent to their duty; eight were obliged to omit the water, viz. six in consequence of a relapse of their ague, one from a pulmonic attack, and one from being affected with sore throat; and sixteen continued the water, in a progressive state of recovery.

In giving this water, I was very forcibly

struck with the rapid effect it produced on the appetite and spirits, and the confidence it inspired in the mind of the patient. In the course of a few days, from the urgent solicitations of the sick, it was found necessary to add to their ordinary allowance of animal food and vegetables, * a quarter of a pound of meat, and half a pound of potatoes; and with a view to recovery, each was ordered one pint of porter per diem.

The improvement of the appetite was soon succeeded by an increase of strength and a return of the natural complexion; and the recovery of these patients evidently proved more permanent, than that of any of the other Walcheren cases sent out of hospital under a different mode of treatment.

The water did not appear to produce any immediate effect on the pulse, or skin, nor did it act particularly on the kidneys; its tendency to increase the appetite, and raise the

* The allowance above alluded to, consisted of half a pound of beef, or mutton, one pound of bread, and three quarters of a pound of potatoes, per diem.

spirits, was the only evident effect to be observed during the early course; and a return of strength and a general appearance of improved health, marked its latter progress.

In administering the water, it was a rule, previously to devote one day, to clearing the bowels by a suitable aperient; and the sulphat of magnesia, or Epsom salts, was the medicine generally preferred. Under this preparation, the water seldom produced any disagreeable effect on the stomach or bowels, or rendered it necessary, during the course, to take laxative medicines; an advantage which does not attach to the other chalybeate waters, unless they hold in solution a considerable portion of some aperient salt.

From the active substances contained in the Aluminous Chalybeate Water, Dr. Saunders as well as Dr. Marcet have very judiciously recommended, that in the first instance, it be diluted. To patients with delicate stomachs, or in irritable habits, this precaution, as well as that of taking off the chill by immersing the glass in warm water, seems

adviseable ; but in the Walcheren cases, the only qualification the water received, was the addition of a drachm, or teaspoonful of the compound tincture of cardamoms, to each dose, which at first was only two ounces, or a small wine glass full ; and this was repeated three times a day, giving the water at those periods, which would the least interfere with the hours of meal. When first prescribed, it was thought adviseable that it should not be taken in the morning fasting ; but in this, as well as in many other particulars, the practitioner must act, as circumstances shall suggest, bearing in recollection, that tonic medicines, in general, produce the greatest effect upon an empty stomach.

In about three days, the dose of the water was increased to three ounces, or a larger wine glass full, with the same proportion of tincture of cardamoms, three times a day ; and at intervals, it was thus gradually augmented, until a pint, in four doses, could be taken in the twenty-four hours, though in

most instances, twelve ounces, or three quarters of a pint, were found sufficient.

The water no doubt might occasionally be given without the tincture of cardamoms or any other addition ; but independently of the risk which would thereby be incurred, of nauseating the stomach, it seems to have derived considerable efficacy from being combined with an aromatic ; in the choice of which, the practitioner must be regulated by the habits and constitution of the patient, as well as by the particular case thus brought under his consideration.

In a course of this water, costiveness, which, with me, the remedy seldom induced, is *most particularly* to be guarded against by the occasional use of a suitable aperient, of which the sulphat of magnesia, or the aloetic pill with myrrh, was generally preferred ; and a laxity of the bowels, if it extends beyond a *temporary* effect, may easily be restrained by adding to each dose a few drops of tincture of opium, or if further necessary, by qualifying it with some aromatic astringent.

As the water had hitherto proved so beneficial, and as, in the first instance, it was an object to ascertain its efficacy, uninfluenced by the aid of any other remedy ; I seldom was induced to vary the mode of giving it in the cases which have been the subject of the present report ; but as the Aluminous Chalybeate is not liable, like most of the other mineral waters, to rapid decomposition, I am convinced it might advantageously be used in extemporaneous prescription ; so as to blend with it, either by admixture, or by a separate preparation, various other articles of the materia medica, that might not only give efficacy to the water itself, but also conjointly promote the cure, in instances, where each remedy, by itself, might possibly fail.

Thus in obstinate agues, as also in many other complaints where debility forms a leading feature, the water, qualified with suitable aromatics, might serve as a vehicle for the Peruvian Bark, or for any of the vegetable tonics ; in chlorosis, it might to advantage be conjoined with aloes, myrrh, and

one of the bitter extracts put together in the form of pills ; and in cases of anasarca, good effects might be expected, from a combination of this water with a course of diuretics, of which perhaps, in such cases, pills composed of one of the mercurial preparations, squills, and a suitable aromatic, may be considered the best. From this view of the subject, I have very lately commenced a trial of the mineral water with other remedies, the result of which perhaps may be the subject of a future communication.

Under all circumstances, it would seem adviseable to begin the water in very small proportions ; and where, from the nature of the complaint, or from the peculiarity of the constitution of the patient, there appears to be the least risk of its nauseating, it should uniformly be taken in a very diluted state, and this should not be altered, nor the proportion be increased, until the practitioner is well assured it may be done, not only with safety, but with increased advantage to the patient.

Encouraged by the effects of the water on the Walcheren diseases, I was induced to prescribe it, and with very evident success, in all cases of the asthenic kind, which appeared to depend upon a lax fibre, and a diminished energy of the circulating system ; provided there was no permanent affection of the abdominal viscera, nor any other circumstance which forbade the general use of mineral tonics.

Among these may be mentioned dyspepsia arising from previous habits of intemperance ; general anasarca ; and all those permanent states of debility, which frequently supervene the following diseases, viz. obstinate agues, affections of the abdominal viscera, chronic dysentery, chronic rheumatism, and asthenia from long courses of mercury, particularly where the scrofulous diathesis had been called into action ; as well as in every instance, where the constitution had been undermined by previous illness, and the ordinary tonics had failed.

Among the diseases in which this water has been beneficial, there was one which, from its singularity, particularly engaged my attention, as well as that of some of my medical friends in the West Indies. It was marked by all those cachectic symptoms that denote a diminished energy of the vital powers ; and it affords a very striking instance of the influence of marsh miasmata in undermining the constitution.

The following account of the disease as it appeared in the West Indies, was transmitted to me by Dr. Skey, an army physician of great respectability, at that time stationed at Barbadoes, in a letter dated October 31, 1806, of which the following is an extract :

“ These men were long under my care in
 “ the General Hospital here, for a disease,
 “ which soon attracted my attention by its
 “ peculiarities, and its refractory nature.
 “ They had all suffered from fever at Tri-
 “ nidad, and had been left by it singularly
 “ pale and sallow, complaining much of
 “ breathlessness and debility. In this state

“ I found them bloated in appearance, some-
 “ times with pitting, altho’ very slightly.
 “ Their pulses 120 or more, and those quick-
 “ ened prodigiously by the slightest motion ;
 “ at the same time peculiarly sharp and thril-
 “ ling ; their tint was strikingly peculiar ;
 “ and if they stood erect for a few minutes,
 “ their paleness assumed a more deadly as-
 “ pect ; at the same time they complained
 “ of vertigo and faintness, only to be re-
 “ lieved by a change of posture. Their ap-
 “ petite was indifferent, their bowels regular,
 “ their motions pale, their urine high colored,
 “ yet not uniformly scanty. They had gene-
 “ rally a full and plump figure, and their
 “ bellies were rather prominent.”

It appears by a subsequent letter, that
 between two and three hundred men of the
 37th regiment alone, were at that time la-
 bouring under the same disease, at Trinidad,
 more or less ill, but not bad enough to be in
 hospital.

The air of Trinidad, I have been informed,
 is peculiarly moist and warm, and the

military quarters much exposed to the vapours arising from most extensive swamps. Such situations are also to be found in most of the other West India islands, whence I have occasionally received cases similar to those from Trinidad, but by no means in the same proportion, as from that island.

Out of fifty patients, labouring under the above disease received at the *Depôt* from Trinidad, it was only found necessary to admit about fourteen into hospital; the remainder having sufficiently recovered from the voyage, to allow of their being sent to Ryde, a healthy situation on the coast, where many experienced a rapid improvement in their strength; though the bloated, exsanguine countenance, with *dyspnæa* or shortness of breath upon the least motion so peculiarly characteristic of this disease, were observable for a considerable time afterwards, and with which indeed several are still affected.

The symptoms of those patients who came under my care in the hospital, excepting that general *anasarca* prevailed to a greater degree

than it appeared to have done at Barbadoes, and that a cough was observable, exactly corresponded with the account which had been so ably drawn up by Dr. Skey, and they were such as to render it extremely difficult to class the disease under any satisfactory head. However, as some of the viscera were evidently affected, and as no other better term could be suggested, they went under the general denomination of diseased viscera, which proved in the sequel to be correct; for in those who died, of which in all there were six, the following appearances were discovered :

A very large proportion of serum was found in both cavities of the thorax, in the pericardium, and, in two cases, in the abdomen also; the lungs were uniformly diseased with tubercles and vomicæ; the mesenteric glands were considerably enlarged, and the mesentery and omentum enveloped in a thick coat of dense adipose membrane, which was observable also, in a remarkable degree, to be contained between the peritonæum and

the abdominal muscles. To these appearances, in three of the cases, the liver was indurated, and the spleen greatly enlarged.

The above account will serve perhaps to explain some of the phenomena which distinguished this singular disease.

It is evident that the unhealthy climate of Trinidad, by its debilitating tendency so peculiar to such situations, had so far gradually impaired the functions of some of the most important viscera, as to render them unequal to the performance of their office, and which, by the constant application of the same cause, ended in their being permanently diseased.

Hence the lungs, the mesenteric glands, and in some instances, the liver and spleen became the seat of morbid affections; and hence from the total inaction of the absorbents, the balance between secretion and absorption being destroyed, it will not be difficult to account for the mesentery, the omentum, and the abdominal muscles being surcharged in so remarkable a degree with adipose membrane; for the quantity of serum that was

found in the cavities ; nor for that protuberance of the belly, and that bloated, full, and plump appearance of the general figure, which have so particularly been noticed in my friend's communication. Again, from respiration being interrupted by the morbid affection of the lungs, and no doubt also by the pressure produced by an effusion of serum into both cavities of the thorax ; dyspnæa, or shortness of breath upon the least motion, would necessarily be the consequence ; and the same causes co-operating with the large proportion of water that was found in the pericardium which in a certain degree might influence the action of the heart, and with that diminished energy of the whole system which so peculiarly marked the disease ; these circumstances taken together, will perhaps explain the facility with which the pulse was quickened by the slightest motion ; and will account for that disposition to vertigo, syncope, and change of countenance, which was observed when in the erect position, and

which could only be relieved by a change of posture.

The above is offered however merely as a suggestion to the medical reader, who, being in possession of the symptoms of the disease, and of the appearances after death, will no doubt form his own opinion on the proximate cause of this singular affection.

At the time the Trinidad cases were admitted into hospital, the Aluminous Chalybeate Water, unfortunately, had not been discovered, and consequently we could not at that period ascertain its efficacy in this disease. But since, from the annual supply of cases of the same nature from the West Indies, we have had very fair opportunities of giving it trial; and where there was no evident induration of the liver or spleen, we have uniformly found this remedy to produce more beneficial effects than any medicine that had previously been given in such cases.

There were however many circumstances attending this disease, which rather forbade a trial of the mineral water. It had been

previously ascertained, that some of the viscera, particularly the lungs, were diseased ; and in addition to the symptoms described by Dr. Skey as existing in the West Indies, the patients when received into our hospital, were labouring under a short, dry cough, which though in itself not severe, occasionally disturbed their rest, and rather appeared to increase the difficulty of breathing to which they were at all times subject, upon taking the least exercise.

These appearances, I confess, made me hesitate in prescribing the remedy ; more particularly as my former experience had convinced me, that it was injurious in the pulmonary diseases of this country, as well as in the permanent affections of the abdominal viscera of foreign climates.

On the other hand, the extreme debility under which these patients laboured ; the cachectic appearance of their countenance and whole system ; the little effect produced by other remedies, excepting by the milder tonics, which, with the aid of a generous

diet, had in a small degree improved their health ; and the impression that the disease originated in a diminished energy of the vital principle ; these considerations ultimately induced me to wave my former objections, and to afford these unfortunate men a chance at least of benefiting by a remedy, which, in other instances, had been attended with such salutary effects.

They were therefore placed upon a course of the mineral water, under the same regulations as were observed in the Walcheren cases, allowing them, in suitable proportions, such diets, as their appetites and inclinations might suggest, and wine, or porter in addition, as an auxiliary remedy.

To my agreeable surprize, the water in a very few days began to increase their appetites, and to inspire the patients with confident hopes of recovery ; the œdematous swelling of the lower extremities gradually subsided ; the morbid bulk of the whole body which with, such accurate coloring, has been

noticed by Dr. Skey, as characteristic of this disease, became in a proportionate degree diminished ; and most of the symptoms gradually disappearing, the patients were either restored to health, or their strength was so far improved, as to render their situations comfortable to themselves, and to afford the practitioner a reasonable expectation of ultimate recovery.

For persons therefore whose health has suffered by long residence, or by the diseases of warm climates, this water seems peculiarly calculated.

The only instances where the Aluminous Chalybeate had been tried, in which it did not appear to produce a good effect, were in permanent diseases of the abdominal viscera, and in pulmonary consumption. In the latter, though given at a period when debility, unaccompanied with any febrile symptom, local pain, or the like, seemed to warrant its use ; yet it uniformly aggravated the disease so much, that I was compelled to order its omission ; being convinced in this

instance, as well as from my former experience, that chalybeate medicines in general are not calculated to give relief in phthisical complaints, excepting under very considerable limitations.

It however must be admitted, that in certain indispositions and states of the constitution, particularly in chlorosis, where a consumptive attack is threatened, chalybeates have produced the most beneficial effects; and in such instances, the Aluminous Chalybeate seems well calculated to afford relief, where other preparations of iron might possibly fail; but when the disease has so far been confirmed, as to be marked by local pain, dyspnæa upon increased exercise, and hectic fever; I am very apprehensive, the remedy, if tried in such cases, would disappoint the expectations of the practitioner. But in the convalescent stage, where the pulmonic symptoms had all abated, and a restoration of strength was the only object, I found the mineral water answer every good purpose; as well as in all cases of emaciation, and of

constitutional debility, when unconnected with organic disease. Indeed the numerous instances of patients being restored by a course of this water, who, in consequence of a broken constitution, and the little effect produced by other remedies, had been marked down as lost to the public service, altogether form such a chain of evidence in its favor, as to place its efficacy in such cases beyond all doubt.

Having mentioned in general terms the diseases for which the mineral water was prescribed in the Dépôt Hospital, the following statements will explain the particulars, together with the result of my experience in the new remedy. They were abstracted from the hospital books, on the 10th of October, 1811 :—

October the 10th, 1811.

*Statement of Diseases which preceded a Course of the Mineral Water,
with the Result.*

Diseases which preceded a Course of the Water	Have taken the Water	Benefited by the Water	Omitted the Water	Now taking the Water
Continued fever	17	10	1	6
Agues	90	75	13	2
Pulmonic diseases	18	9	5	4
Chronic dysentery	8	5	..	3
Chronic rheumatism with emaciation	27	25	1	1
Diseases of the abdominal viscera, including cases of anasarca	21	11	6	4
Asthenia	10	5	1	4
Total.....	191	140	27	24

October the 10th, 1811.

*Statement of the different Stations from which the Patients were received,
who were placed on a Course of the Mineral Water.*

From whence admitted	Have taken the Water	Benefited by the Water	Omitted the Water	Now taking the Water
From the Depot.....	32	14	5	13
Tilbury Fort	9	3	..	6
Poland	2	2
Walcheren	66	55	11	..
Lisbon and Mediterranean.....	39	27	9	3
America	9	9
West Indies.....	28	25	2	1
East Indies	6	5	..	1
Total	191	140	27	24

IN referring to the preceding documents, it may be necessary to explain, that the patients were not actually laboring under all the diseases therein enumerated, but chiefly under the supervening debility; and that it was only in cases of chronic rheumatism, of anasarca, and of what has been denominated asthenia, or that state of constitutional weakness which could not well be classed under any other head, when a particular disease might be considered to be present, at the time of commencing the mineral water.

Most of the cases of chronic rheumatism were marked by great debility, and considerable emaciation; consisting chiefly of soldiers who had either been exposed to very active service in unhealthy climates, or who had been reduced by long and repeated courses of mercury. The mineral water in such cases, seldom failed to produce the most decided and beneficial effects, and often when a very hopeless expectation had been formed of the patient's recovery.

The cases of anasarca have been classed with those of diseased viscera, because they

were generally supposed to be connected in a certain degree with visceral affections ; but they were chiefly debilitated patients from the West Indies, who labored under that singular disease, which, from the peculiarity of its symptoms, may perhaps, without any great breach of nosological propriety, be termed the *Trinidad Cachexy*. The effect of the mineral water upon these patients, has already been particularly noticed.

Dyspepsia, though not referred to in the statement, has been mentioned in a former part of this report, as having been relieved by a course of the mineral water. Among soldiers, this disease, unless connected with some other affection, seldom forms the subject of hospital treatment, and therefore in such instances, it may more properly be considered symptomatic ; but as such, it often proved very distressing, particularly in the asthenia of warm climates, and in chronic affections of the liver, produced by previous habits of intemperance. This symptom was generally relieved by the Aluminous Chalybeate, provided a course of the water

was not prohibited by some permanent affection of the liver, or other important viscus.

Of the twenty-seven patients who were obliged to omit the water, owing either to a relapse, or to the supervening of a new disease, it appears that thirteen, which are nearly half the number, had previously laboured under agues.

The disposition of this disease to relapse, particularly when contracted in Walcheren, can only be comprehended by those, whose experience may have pointed out to them, the refractory nature of this very obstinate malady ; in which no improved circumstances of health, nor period of time, could be fixed on, as a rule, by which the patient might be considered secure against its insidious attacks. However, of those among the ague cases where the water was omitted, they were not all relapses ; for some were attacked with the epidemic which then very generally prevailed among the troops at the Dépôt, in the form of pneumonia, or inflammation of the lungs ; a disease which bore particularly heavy on the Walcheren cases in general, as

well as on many of the other patients laboring under chronic disease, whose cases have been referred to in the preceding document. This circumstance necessarily caused the water to be discontinued, and often at a period, when there was every reasonable expectation of its producing the very best effects.

When therefore, we review the very diseased state in which invalided soldiers are received into the Dépôt hospital from abroad, together with the difficulty which hitherto has been experienced in restoring them to health, it certainly must be considered a fortunate circumstance, that a remedy has been discovered, capable of producing such salutary effects, as those which have been derived from a course of the new mineral water; and as this remedy, under proper management, may still more extensively be used, and no doubt, with equal advantage in private practice; it occurred to me that its medicinal effects could not too early, or too generally be communicated. *

* Two very striking instances in private practice, have fallen within my own observation, where the mineral

The complaints then, which this powerful remedy is calculated to relieve, are evidently all those which depend upon a cachectic habit, or which are connected with constitutional debility ; but, more particularly, dyspepsia, or as it is familiarly termed a stomach complaint ; scrofulous diseases when not blended with pulmonary affections, or accompanied with hectic symptoms ; passive hæmorrhages of every kind ; chlorosis ; leucorrhæa ;

water has been administered to great advantage.

The one was a long standing case of dyspepsia, in which evident relief was obtained, after the patient had unsuccessfully taken the advice of some of the most eminent practitioners in the kingdom.

The other was a patient labouring under very obstinate nervous debility, arising in a great measure from a natural delicacy of constitution, and who unquestionably derived the most decided benefit from a course of the water after the ineffectual trial of various other remedies of established reputation.

In addition to these, I have been informed by some respectable practitioners, that they have advantageously given this remedy in obstinate cases of passive uterine hæmorrhagy ; in genuine scurvy produced by poorness of living, scanty cloathing, and inattention to cleanliness ; and externally as a wash, in scrofulous and phagadenic ulcers, herpetic eruptions, and particularly in tinea capitis.

general anasarca ; constitutional weaknesses induced by other diseases, or derived from a hereditary cause ; and all those nervous complaints, as they are usually denominated, depending upon a delicacy of constitution, and which are only to be removed by improving the general health.

The mode of administering the water, having already been explained, when treating of the Walcheren cases, it will be sufficient here to repeat, that in this particular, as well as in many others connected with a course of this water, much must be left to the discretion of the practitioner, who will be regulated by a knowledge of the constitution of the patient, and of the disease under treatment ; keeping in view the strength of the water, and those circumstances which may best be calculated to prevent its occasioning any disagreeable effect on the stomach or bowels, or which may obviate it when it does occur. *

* Perhaps, in all instances, it would be better at first to dilute the Aluminous Chalybeate, with two parts of common water, which proportion might be gradually diminished, until the mineral could be taken in its pure state.

A nutritive diet without excess, a rigid attention to the state of the bowels so as to avoid costiveness, early hours, particularly early rising, exercise in the open air, more especially on horseback, and sea bathing, when not otherwise forbid, are among the useful auxiliaries to a course of this water; and as probably most of the cases in which the water will be recommended, have been of long standing, and are of an obstinate nature, the patient must not be too sanguine in expecting an early cure, or fail to persevere in its use, so long as his medical adviser shall deem it requisite.

Having pointed out the diseases in which the mineral water promises to be beneficial, it is equally incumbent on me, to notice those where it is calculated, not only to fail in affording relief, but even under certain circumstances to be extremely injurious.

It is among the few disadvantages under which mineral waters in general labor, that they are liable to great abuse from being taken indiscriminately, without the least attention to, or knowledge of the complaint for

which they have been used, and more particularly from an ignorance of the principles upon which alone relief can be obtained.

It must be evident that a mineral water holding in solution such active substances, and those in such large proportions, as are to be found in the one now under consideration, cannot be very negative in its operation on the human body; and that consequently in proportion to its capability of producing new actions, which even under very disadvantageous circumstances of disease may lead to health; those very actions under opposite states of the body, may increase the existing disease; or what may be worse, produce one of a more dangerous tendency.

It should be understood, that iron under its various preparations, not only increases the tone of the muscular fibre, but also the action of the circulating vessels, even to their minutest ramifications; and that when combined with alum, as is the case with the Sandrocks water, this property is very considerably augmented.

Such a remedy therefore it must be obvious will prove injurious in all cases where there is already an increase of the circulation, as in febrile diseases, whether arising from a general cause, or from a local inflammation ; in plethoric habits which render the patients liable to particular determinations often ending in apoplexy, violent active hemorrhagy, or in an inflammation of some important organ ; in pulmonic diseases, excepting under great limitations ; and particularly in long-standing affections of the abdominal viscera, where by increasing the circulation, the obstruction may be rendered permanent, a suppuration be induced, and the most fatal consequences may not unfrequently ensue.

Under this view of the subject, the necessity cannot too strongly be inculcated, of professional men, already acquainted with the constitution of the patient, and with the composition of this very powerful water being consulted, before a course be decided upon ; as well as of the patient's rigid observance of those precautions, which may be deemed re-

quisite to give efficacy to the remedy, and best promote the cure.

It will also be right to mention, that the mineral water, like many other powerful remedies, is not to be considered infallible in the cure of the diseases for which it has now been recommended, but that like them, it will occasionally fail. It has been previously admitted, that some of the patients, after taking the water, experienced a relapse of their ague, (a disease indeed which it is not calculated to cure, but merely to arm the constitution against its recurrence) and that others were obliged to omit it, in consequence of being attacked with some other complaint, which rendered a continuance of the water improper. Such occurrences, in the present imperfect state of the medical art, are to be expected ; and do not unfrequently present themselves, under the most judicious treatment of disease ; and they never should be lost sight of by those, who come forward in recommending new remedies, or by the patients themselves, who are often too

apt to fly to every panacea, which holds out to them a promise of cure.

All we contend for, is the efficacy of the water as a tonic, and its capability of removing many of the morbid states of the human body, in which the other preparations of iron have evidently failed. Should the remedy hereafter be found to possess this property, my time will not have been misapplied, in giving publicity to the merits of the new mineral water, which, with so much apparent reason, stands high in my estimation ; but if on the contrary, from a too anxious zeal founded on hasty conclusions, I have over-rated its virtues, an enlarged experience will not fail to reduce them to their proper level, and to determine, what rank this remedy shall, in future hold, in the scale of medical practice.

FINIS.

ERRATA.

Preface, Page vi; line 8, *for* "have," *read* "has."

Page 37, line 10, *for* "which that part of," *read* "for which that coast."

38, line 7, *for* "perhaps," *read* "probable."

39, line 10, *for* "one hundred," *read* "one hundred and thirty."

42, line 11, *for* "some," *read* "any length of."

44, last line but one, *for* "and the," *read* "that of the."

59, line 4, *for* "tinctere," *read* "tincture."

